

Aviation News

McGRAW-HILL PUBLISHING COMPANY, INC.

NOVEMBER 22, 1943



Resignation Opposed: Charles E. Wilson, WPB executive vice chairman, has submitted his resignation but many leaders of the aircraft industry are insisting that he continue his able and successful direction of aircraft production, an insistence expected to stay Wilson's departure, at least for the time being.

Allies Step Up 3-Way Air Assault Against Nazis

Large-scale bombing attacks increased sharply in move for quick knock-out, says CommentatorPage 16

Wright in Production on New 2200 hp. Engine

Company announces data on air-cooled radial powerplant, described as one of most powerful in the world.....Page 25

Pogue Urges Allied Firm Operate Air Bases

CAB chairman favors private management of global routes in talk on "World Highways of the Air".....Page 37

Ford Divulges Plan To Build Postwar Planes

Reveals program for manufacture of high-speed, safe and economical craft of "unique design" at Willow Run.....Page 14

Prehearing Talks Open on Caribbean Routes

Nineteen companies represented out of 21 seeking to operate air lines to Mexico, Central and South America, Caribbean...Page 34

Air Problems Threshed Out at Oklahoma Clinic

About 400 representatives of airlines, industry and private flyers discuss wide range of topics at NAA planning parley....Page 7



Flight tests ON THE GROUND

The first of a series of tests that every newly designed Robinson shock mount goes through, takes place on a vibration stand. This "on-the-ground" flight test is something new in aviation. Now, because Robinson Aviation has developed for the first time a machine that simulates the wide range of vibration and oscillation encountered in actual flight.

Through the use of this machine, our vibration-shaking means are modified and improved in the laboratory, to a high point of all around performance. Our mounts are then thoroughly flight tested in our own airplanes, to secure utmost dependability under arduous combat conditions.

We are pleased to offer the facilities of our laboratory, on the ground and in the air, and the services of our engineering staff on any high priority problem of vibration control.

**ROBINSON
AVIATION, INC.**

230 FIFTH AVE., NEW YORK 23, N. Y.

THE AVIATION NEWS

Washington Observer

AVIATION CLINIC—The National Clinic of Aviation Planning at Oldhams City, sponsored by the National Aeronautic Association, was regarded with some skepticism in the industry when it was first proposed. The results of the meeting, attended by aviation-minded men from the Government, aircraft industry and others, pointed that skepticism and the fact that those leaders were able to agree on unified action on subjects of vital importance to aviation generally indicates that aviation, suffering from growing pains, is beginning to mature.

LEA BILL AT CLINIC—The Lea Bill, which seeks to amend the 1935 Civil Aeronautics Act, naturally was a major controversial issue. This was not unexpected in view of the varied interests represented at the sessions. The fact that the delegates were willing to pass that issue and agree on other basic questions indicated a recognition of the necessity of a united front for the common good of the industry.

ALL IS CONFUSION—Contradictions in high official quarters make it increasingly difficult to get a clear picture of our war position. Confusion, which is frequently found in the minds of the people on the home front, stems directly from statements made by high-ranking, responsible officials, statements which vary widely in their conclusions and statements which contribute to uncorroborated opinion on one hand and uncorroborated pessimism on the other.

STRENGTH OF THE LUFTWAFFE—A few weeks ago, Gen. Arnold disclosed that as a result of our long-range bombing attacks, the strength of the Nazi air force had been drastically reduced, that the Luftwaffe was seriously crippled. Recently, Maj. Gen. George V. Strong, assistant chief of staff and chief of military intelligence, said Germany had more airplanes than she had in 1938. On almost the same day, Secretary of the Navy Knox told his news conference that we have complete domination of the air in the Solomons, New Guinea, the Mediterranean, France, Germany and Britain.

PUBLIC FUZZLED—The question naturally arises—has German air strength increased or diminished? Do we have control of the air over enemy territory or don't we? Gen. Arnold should know and undoubtedly does. Gen. Strong should know and undoubtedly does. Secretary

Knox should know and undoubtedly does. It would help if they got together.

OUTDOOR ASSEMBLY LINE—When the West Coast editor of AVIATION NEWS reports on various developments in the great aircraft industry there, it is most difficult for him to refrain from mentioning that Southern California weather and to compare it—uncomplacently—with that of Washington. We had to bow to



him on the weather angle when he sent along the interesting picture of Lockheed's outdoor assembly line which is adding to the record-breaking output of the much-in-demand P-38 fighter.

TEN-HOUR SHIFTS—The aircraft industry is watching closely the experimental ten-hour shift proposals at Northrop and North American on the West Coast. The West Coast generally did not take kindly to the suggestion of WPA that they adopt ten-hour shifts as a production stimulant. Some industry leaders believe a change-over from the present set-up would result in at least a temporary lowering of production and that the loss would not be compensated by any subsequent production improvement. One aircraft executive went so far

MOSSMAN Electrical Components

Heavy Duty, Precision Switches
as rugged as the planes for which
they were built ...
**PICTURED AND DESCRIBED
IN OUR NEW CATALOG!**



Just off the press is the new catalog of Mossman Electrical Components which includes many types of heavy duty multiple circuit lever switches, new switches, push switches, plug locks and other switching components.

Mossman Heavy Duty Lever Switches are built to stand the terrific jolt and vibration incident to aircraft, yet have the light weight and compact size required of aircraft installations.

The Q-42 Lever Switch, to which the catalog page is opened, weighs but 4 1/2 ounces with eight contact springs ... may have as many as 16 per position or 32 springs total.

DONALD P. MOSSMAN, INC.
6125 N. Northwest Highway, Chicago (31), Illinois

Once locked in position, its detent mechanism holds it securely as a vital, its heavy contact spring pressure will withstand heavy vibration. The Q-42 Heavy Duty Lever Switch is rated at 5 amperes, 110 volts, A.C. The die cast frame may be of either steel or aluminum. Our new catalog illustrates the five basic contact forms in which the Q-42 Lever Switch is available.

Mossman Electrical Components are continuously being developed and added to the Mossman line as broader applications appear. Our field engineering service is available to determine just the switching component best suited to your needs.

AVIATION NEWS

November 22, 1943

CONTENTS

Washington Observer	1
Headline News Bottom	7
Air Mail	16
Aircraft Production	36
Personnel	37
Financial	38
Transportation	34
Editorial	42

THE PHOTOS

Staff Photo	1
General Aircraft Corp.	12, 24
Pia American Airways	25, 24
Naval	26
United Airlines	27
Consolidated Tapes	28, 29
Vega Aircraft	30
Cummins Corp.	31
Wright Aero Corp.	32
American Aircraft Corp.	33
Aluminum Aircraft	34
Continental Pacific Airlines	35
American Airlines	36
Texas Canada Airlines	37
Northwest Aeronautical	38

THE STAFF

Editorial	1
Robert H. Wood	2
C. Scott Hendricks	3
William H. McGee	4
Marjorie E. Parker	5
Blanche Henderson	6
William H. McGee	7
William H. McGee	8
Dallas H. H. H. H.	9

Editorial Headquarters,
2222 Northwest Plaza Building,
Washington, D. C.

Copyright 1943 by McGraw-Hill Publishing Co. Inc. Periodical postage paid at New York, N.Y., and at additional mailing offices. Second-class postage paid at New York, N.Y., and at additional mailing offices. Postmaster: Send address changes in New York, N.Y., to McGraw-Hill Publishing Co., Inc., 2222 Northwest Plaza Building, Washington, D. C. 20037. Second-class postage paid at New York, N.Y., and at additional mailing offices. Postmaster: Send address changes in New York, N.Y., to McGraw-Hill Publishing Co., Inc., 2222 Northwest Plaza Building, Washington, D. C. 20037.

James W. McGraw, President and Chairman of the Board; Robert H. Wood, Vice President; C. Scott Hendricks, Editor; William H. McGee, Managing Editor; Marjorie E. Parker, Assistant Managing Editor; Blanche Henderson, Special Advertising Services; William H. McGee, Assistant Managing Editor; Dallas H. H. H. H., Assistant Managing Editor.

Advertisers Index

Aviation	41
Perth Aircraft Corp.	42
United Aircraft Corp.	43
United Aircraft Corp.	44
United Aircraft Corp.	45
United Aircraft Corp.	46
United Aircraft Corp.	47
United Aircraft Corp.	48
United Aircraft Corp.	49
United Aircraft Corp.	50
United Aircraft Corp.	51
United Aircraft Corp.	52
United Aircraft Corp.	53
United Aircraft Corp.	54
United Aircraft Corp.	55
United Aircraft Corp.	56
United Aircraft Corp.	57
United Aircraft Corp.	58
United Aircraft Corp.	59
United Aircraft Corp.	60
United Aircraft Corp.	61
United Aircraft Corp.	62
United Aircraft Corp.	63
United Aircraft Corp.	64
United Aircraft Corp.	65
United Aircraft Corp.	66
United Aircraft Corp.	67
United Aircraft Corp.	68
United Aircraft Corp.	69
United Aircraft Corp.	70
United Aircraft Corp.	71
United Aircraft Corp.	72
United Aircraft Corp.	73
United Aircraft Corp.	74
United Aircraft Corp.	75
United Aircraft Corp.	76
United Aircraft Corp.	77
United Aircraft Corp.	78
United Aircraft Corp.	79
United Aircraft Corp.	80
United Aircraft Corp.	81
United Aircraft Corp.	82
United Aircraft Corp.	83
United Aircraft Corp.	84
United Aircraft Corp.	85
United Aircraft Corp.	86
United Aircraft Corp.	87
United Aircraft Corp.	88
United Aircraft Corp.	89
United Aircraft Corp.	90
United Aircraft Corp.	91
United Aircraft Corp.	92
United Aircraft Corp.	93
United Aircraft Corp.	94
United Aircraft Corp.	95
United Aircraft Corp.	96
United Aircraft Corp.	97
United Aircraft Corp.	98
United Aircraft Corp.	99
United Aircraft Corp.	100

as so may be believed production would go up if an eight-hour, five-day week were adopted in the industry. That doesn't appear likely.

INCENTIVE WAGES—Little has been and probably, of late, regarding wage incentive progress in the aircraft manufacturing industry and the proposition is under serious study on the West Coast and elsewhere. Betting up such plans which will be fair and equitable to both labor and management is a tremendous task, but there are indications there may be some West Coast aircraft companies which will announce some type of incentive plan by the first of the year.

THE COUGHEN' COFFIN—Present aircraft production schedules still call for a gradual and final tapering off in output of the Martin B-26 "Marauder," despite the glowing reports on this plane from the battle-front and from returned pilots. It would be pretty difficult, for example, to talk down the "Marauder" is the crew of the "Coughen' Coffin," a battle-scarred B-26 which went through 34 bombing missions from Jan. 1 to Oct. 23. She had an engine shot away and the crew had full of holes, but she always came back and her crew came through unscathed.

ANGLO-AMERICAN AIR—Cooperative air operations on a most impressive scale have been taking place during the past two months in the Mediterranean. The creation of a new all-American Mediterranean Air Force under Lt. Gen. Carl Spaatz, probably marks the beginning of reorganization in Mediterranean air efforts. There may be less making of British and American air units, with close contact at the top rather than in subordinate formations.

INTERNATIONAL AIR—Informal conferences between British and American aviation men appear to be in the offing. Lord Beaverbrook, whose arrival in the United States soon has been forecast, was reported as this was written to be on the side of the Atlantic. If so, his arrival in Washington is imminent, with a direct report on recent sessions in London as to which the opinions of the Dominions were thrown into the general discussion pool.

AUSTER MARK 3—There have been few details on this aircraft which is actually the British Army's Taylorcraft. This Taylorcraft airplane is manufactured in England by an entirely separate company from Taylorcraft Aviation Corp. of Alliance, Ohio. The British firm,

Washington Observer

Taylorcraft Aeroplanes, Ltd., is under license from the American company and while they have drawings and designs for the current Taylorcraft Twendies, the L-2 Army model, it is not believed they have manufactured any of this type. They have been building some side-by-side Taylorcrafts, however, which use 90 and 100 hp. Cirrus engines. The Auster Mark 3 is the same side-by-side model with a higher horsepower engine (130 hp.) installed.

OVER 100 HELICOPTER PROJECTS—There are now more than 100 companies which have designs and ideas about production of helicopters. Not more than a half dozen of these actually have built helicopters that will fly, an expert says privately, and considerably less than half of the total involved have been projected by aircraft or related companies.

GOVERNMENT OWNED FACILITIES—It is understood that some members of the Inter-Departmental Committee, studying disposal of government-owned facilities, are considering the possibility of leasing war plants to private industry during the period of negotiation for sale. This proposal is still in the study stage but would have the advantage of providing a working arrangement in the event negotiations become protracted, which they will right in some cases.

POSTWAR PLANES—Conjecture as to what postwar airplanes will look like is as wide as the sky, but it is pretty generally agreed that during the immediate postwar period there will



be little change. Trans-acoustic airplane interiors, for example, probably will look pretty much like the interior of the Pan American clipper pictured on this page, a picture taken during the happier days of peacetime flying.

MAKE THEM MORE AND MORE AUTOMATIC
... TO INCREASE THEIR
FIGHTING POWER ...

One simple adjustment of the lower controls is all that is needed to increase their fighting power.

1. Simple and easy to use
2. All-weather operation
3. Simple installation
4. Complete in operation

Your request for information is usually for the above mentioned unit, making the correct connection of an auto-wired White-Rodgers system.

WHITE-RODGERS ELECTRIC COMPANY
SAINT LOUIS, MISSOURI

SENTINELS OF SAFETY

PROTECT PLANE AND CREW

White-Rodgers motorized temperature controls automatically prevent excessively high or low temperature conditions that spell danger to a plane and its busy crew.

Equipped with sensitive element applicable to air duct or liquid immersion, length of capillary and the White-Rodgers motor assembly can be varied in design to fit specific applications.

Engineering data will be furnished to manufacturers upon request.

WHITE-RODGERS ELECTRIC CO.



SAINT LOUIS, MO.



VOLUME 1 • NUMBER 17

Aviation News

McGraw-Hill Publishing Co., Inc.

NOVEMBER 22, 1943

Postwar Air Problems Threshed Out At Oklahoma City Aviation Clinic

600 representatives of aircraft industry, airlines and private flyers discuss wide range of topics at first national aviation planning conference.

BY ALEXANDER MCGURELY

Signs of the beginning of a new era of maturity in the aviation industry were apparent in many quarters, in the First National Clinic of Domestic Aviation Planning, held under sponsorship of the National Aeronautic Association, at Oklahoma City, Nov. 11, 12, and 13.

Not the least of these was the ability of the industry to set aside resolutely a controversy which seemed impossible of settlement, in regard to the Lee Bill, in order to continue the session to formulate policies on other matters of equal importance, on which the 600 representatives of aircraft manufacturers, private flyers, airlines, and other representatives could agree.

Resolutions—The scope of the meeting is shown by the variety of resolutions, unanimously adopted, which called for:

Establishment of a Department of National Defense, eliminating separate Navy and War departments in the interim, and grouping these with undersecretaries, on an equal footing with the Air Force, in the new department.

Immediate CAB action to set up a pattern for fender routes to small cities, and prompt hearings on applications for such routes.

Air Parcel Post—Action by Congress and Post Office Department toward adoption of liquidation existing system of air parcel post, with earmarking of profits from air postal service for expansion of air postal service, and additional appropriations for expansion.

Continuance and expansion of intensive research on all aspects of aviation by both Government and private enterprises.

Cooperation by state and federal governments in establishing post-war airports in suitable numbers

and locations in the various states.

Airport Protection—Revision of regulations closing coastal airports and placing 24-hour guards on all airports, as soon as revision is consistent with national safety.

Appointment of a standing commission on aviation education to foster extension of aviation education in the nation's schools.

Continuation of government pilot training programs in the postwar, both for a military air reserve, and for civilian pilots.

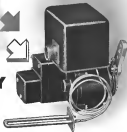
Crashout Investigation—Prompt action in termination of war crashouts, with uniform procedure to be set up by Congress, and with control of disposition of surplus aviation

equipment at the close of the war, to go to an appropriate government agency.

All possible measures to multiply number of airports for personal use, with simplified regulations governing their use.

Observers noted that a number of the resolutions in effect called for support of certain portions of the Lee Bill, indicating these portions at least were generally acceptable to the entire industry. Controversy over the proposed bill, which seeks to codify existing federal aviation regulation, and revise it, started at the clinic's opening day luncheon, when Col. Edgar S. Garrett, president of Air Transport Association of America, eloquently advised support of the bill, warning that conflicting state regulations would interfere with aviation's progress unless some such federal regulation was set up.

Lee Bill Attacked—The controversy flared later when Thomas Walsh, state aeronautical official from Michigan, attacked the bill as shortening state's rights. Later a group of aviation officials representing 31



One of the many types of automatic safety controls manufactured for the steadily increasing demands of our armed forces.



RESOLUTIONS COMMITTEE

Members of the Resolutions Committee for the National Clinic of Domestic Aviation Planning are shown at one of their sessions in Oklahoma City. Left to right, seated: J. E. Tonge, George Logas, Ralph J. Hall, Kern Davis, chairman; Frank Fogarty, Percy McDonald, Fowler W. Barker, editor of Air Transport, and Dr. Ben Wood. Standing, NAA President Gull Robb Wilson, Paul Robinson, Tom E. Brown, Merrill C. Nease, vice-chairman; Merrill C. Drumbower, and John E. F. Morgan.



LEA BILL PRO AND CON:

Representatives of opposing views on the Lea bill to amend the Civil Aeronautics Act, now pending in Congress, are shown at the National Clinic for Domestic Aviation Planning, Oklahoma City. Left to right: Thomas Widish, Fernell C. Druszkowicz, Gen. Matt Neely and William L. Anderson. Widish and Anderson, state aeronautics officials from Michigan and Pennsylvania respectively, attacked the bill as interfering with state's rights, while Druszkowicz, executive vice-president of Continental Airlines, Denver, and Governor Neely, of West Virginia, were among the bill's strong proponents.

states, according to William Anderson, of Pennsylvania, chairman, voted independent resolutions attacking the bill, and urging postponement of any federal legislation until after peace.

Statements at the clinic included:

• **William A. M. Burden**, special assistant to the Secretary of Commerce: "There are 8,600 communities of 1,000 persons or over in the United States, almost all of which should ultimately have an airport. National plan now calls for approximately 6,000 airports, instead of 4,000, most of the increase being in small fields for private flying.

"There is little need for about 1,500 more small fields. The government must continue to help civilian aviation training until such time as it is absolutely certain a sufficient number of our citizens can and will learn to fly each year at their own expense to insure the United States' remaining the largest and most important air power in the world."

• **Harold Burden**, CAB member: "There are now on file with the board 223 applications to serve approximately 3,600 towns and cities, with proposed new routes totaling approximately 110,000 miles. Two-

thirds a commercial passenger industry on a wartime philosophy involving great personal risks and in which waste and extravagance are inevitable. It is in this connection that educational levels can serve both the public and the aviation industry in re-establishing and restoring our peacetime standards of safety, economy and efficiency in air transportation."

• **Don Flower**, Cessna: "The personal thing we want airports that cannot be expanded in the future to drive out the private flyer. We want a landing strip in the park here in Oklahoma City, one block from wherever you want to go. The personal place will be any harder to fly or take any more runway in the power than it does now. It will show substantial improvements in both respects."

• **Gill Robb Wilson**, NAA president: "A vast redistribution of civilization because aviation has narrowed the world to one neighborhood. We will take out of the old world's capitals millions of youth eager for peace and settle them in new territories."

Let's put together and pull together and cut out this damn feudalism."

• **William B. Steel**, aircraft designer: "There are 3,000 roofs in New York right now which could be used for helicopter landings, by only unhooking the doors to the roofs. Helicopters will be used in crowded urban areas but are less practical for wide open spaces."

• **Cal Edgar S. Gerrell**, ATA president: "No program for America's civil aviation would be complete without a staging declaration of independence of civil aviation from domination by surface carriers. There has been a growing indignation which warms of the elimination of complex sets of state regulations which would in some cases affect a portion of civil aviation and in other cases might affect all branches."

• **Francis A. Culley**, vice-president, Consolidated-Vallen Corp.: "The cost of shrinking a business is as much a cost of war, as the cost of expanding it . . . Quick porteur settlements of contract termination are necessary to avoid a chaotic condition in the production facilities of our nation."

• **Dudley Steel**, manager Lockheed Air Terminal: "There is need to apply modern merchandizing to airports. Suggestions for additional revenues include better garages, more clean, comfortable gasoline service stations, parking lots charge-

ing small fees except to passengers, cocktail lounge, coffee shop, restaurant, barbering, drugstore, bowling alley, news reel theater, drive-yourself cars, steam bath, showers, massage rooms, controlling revenues of telephone and telegraph facilities, getting a percentage return on their lands."

• **C. Edward Lawrence**, chief, proceedings division, CAB: "Comments among these qualified industries that new type airplanes suitable for operation of local service including

combination passenger and pickup equipment, will not be ready until at least one year after Germany's collapse, and that commercial helicopters are at least a year off."

Business sessions were conducted in the House of Representatives chamber in the Oklahoma State Capitol. Delegates for the delegates included trips to the big Douglas C-47 plant, and to the Area Air Service Command at Tinker Field, and a herbaceous and Indian dance at the local golf and country club.

\$800,000,000 Airport Program Urged by Burden for Post-War Era

Stresses need of bigger and better fields for accommodation of large transports, increased commercial and private traffic.

Organization of a postwar airport development program is out approximately \$800,000,000 is recommended by William A. M. Burden, special aviation assistant to the Secretary of Commerce.

Burden pointed out that the expenditure, while it would mean doing our present airport investment, is only a fraction of the two

and a quarter billion spent annually by federal, state and local governments on highways, streets and roads.

• **Post-War Requirements**—While conceding that postwar airport requirements cannot be foreseen in detail, Burden says they fall generally into four categories:

1. Development of large airports

for transcontinental and trans-oceanic operations.

2. Development of existing designated air carrier airports.

3. Development of facilities for local or feeder scheduled service.

4. Development of facilities for the private flyer.

Burden expressed his views at the recent National Clinic of Domestic Aviation Planning at Oklahoma City.

One present system of airports is as obsolete one and generally was adequate for pre-war commercial aviation. The United States is served by some 2,440 civil airports, of which 750 are suitable for transport aircraft. In addition, several hundred military airports have been built during the war, of which probably somewhat less than half of them will be permanently useful for civil purposes.

• **Survey Made in 1939**—The airport survey made by the Civil Aeronautics Administration in 1939 recommended a national airport development plan embracing some 4,000 airports. It appeared then that a network of that size would be sufficient to serve the future needs of aviation for some years.

Burden said we are now in process of revising our national plan and estimates of four years ago were



CLOSEUP OF A BABY CARRIER:

This new photograph of the USS Chief shows more detail than any pictures previously released by the Navy of our baby fleet-type. The Chief, with its seven and three accompanying destroyers, beached at Wotani, Nauru, after any other combination in Naval history.

1970. It was converted from a *Marston* Commandant's hull by Seattle Tacoma Shipbuilding Co. and commissioned on Nov. 8, 1942, the day of the North African invasion. Navy midgets at top of mast where carrier decked details.



AIRCRAFT STANDARDS GROUP

Officials of National Aircraft Standards Committee for 1943-44 photographed at their recent meeting at Hotel Lexington in New York. Seated, left to right: Charles Sargent, Jr., Consolidated Vultee Aircraft, West Coast chairman; Jack F. Cas, Vought Aircraft, national chairman; George W. Ragsdale, Cessna Aircraft, East Coast chairman; standing, left to right: Glen M. Arns, Northrop Aircraft, vice-chairman, West Coast; Eugene W. Norris, secretary of national office, Washington, D. C.; Jerome Gropper, Brewster, vice-chairman, East Coast. Not present in the picture are board members R. W. Miller, executive sponsor, Republic Aviation; and R. W. Wells, chief engineer, Boeing.

too conservative. He said the number would have to be increased to approximately 6,000, most of the increase being in small fields for private flying.

Local Participation—"One thing is certain," Burden said, "and that is that if the program is to be developed on a sound basis, there must be a far higher proportion of local financial participation than there has been in the past."

He pointed out that equally essential to safe air navigation either by airlines or private flyers is the federal airways system.

Modernization—"The postwar requirements of expanding commercial aviation will demand extensive modernization of the present airways system and the building of thousands of miles of new airways to serve the extensions of trunk air routes and whatever feeder routes expansion the CAB sees fit to certify and Congress to finance."

Burden estimates the cost of the airways modernization and expansion program would be extremely small in relation to other aeronautical expenditures.

Investment—"Total present investment in airways facilities," he

said, "is only \$50,000,000—less than the cost of one of our very large international airports—and new airways of the most modern type can be built for only \$2,000 per mile."

Burden discussed the Civilian Pilot Training program and said that when the pattern of federally assisted postwar flight training is finally set "we will find that a larger proportion of it will be covered by high schools than is now the case, with the colleges remaining the backbone of the system."

Civilian Training—"In my opinion," he added, "the postwar civilian training program should be following these principles:

1. It should be carried out by private flight instructors working with one educational institution.
2. It should be highly selective on a scholarship basis, with only the best and girls who stand at the top of their classes in ground school work eligible for federally-assisted flight training.
3. Some financial contribution should be made by the students themselves when they are capable of doing so.

4. The standards of flight and ground training should be high.

5. The students receiving flight training at federal expense might, if Congress desires, either be enlisted in an aerial R.O.T.C. or pledged for a limited number of years to military service in the event of war.

Burden said he did not visualize that federally assisted training need be a permanent part of American aeronautical policy, but such a program would accelerate the development of the private flying industry to the point where it can stand on its own feet economically.

NAS Adopts New Standards on Planes

Action taken at three-day meeting exposed to simplify design.

Adoption of new standards and specifications which will simplify design, assembly and maintenance of United States government airplanes all over the world, were announced by the National Aircraft Standards Committee of the prime aircraft manufacturers at the conclusion of its three-day semi-annual meeting in New York.

The meeting was attended by more than 40 representatives of the 12 contractors for design and production of government airplanes as well as members of the Army-Navy Aeronautical Board, the Bureau of Aeronautics of the Navy, Wright Field staff, Army War Production Board, American Standards Association, British Air Commission, Royal Canadian Air Force and the Australian Office of War Supplies.

Progress Report—Retiring national chairman Eric Dudley, aeronautics standards engineer for Cessna-Wright, Buffalo, announced that the meeting approved the progress report of his subcommittee for reduction of variation of sizes, thicknesses and tolerances for carbon, alloy and standard steels in sheet, plate and bar form to approximately one-seventh of their former number.

This project is now nearly complete. Dudley disclosed that his committee, now in its third year, has produced from 50 to 75 new standards and specifications per year, which have been officially adopted, and all of which will greatly simplify the raw materials problems of airplane designers, manufacturers and purchasers.

Flexibility—He said, further, that the Army-Navy Aeronautical Board is giving the National Aeronautics Standards committee independence of action.

He said that the committee is now working on a project to simplify the design of aircraft engines, which will be completed by the end of the year.

transmission responsibility in preparation of data for Army-Navy standards, which are the highest in the aviation world.

Listed among the accomplishments of the National committee during the past year was the reduction

of 2,790 varieties of dual tubing materials and sizes to 323, a corresponding reduction in steel tolerances and cutting of the approximately 100 varieties of rivet types and materials used in airplane construction to fewer than ten.

WAL Purchase of Inland Expected To Pave Way for Other Airline Deals

Results of CAB hearing on consolidation watched with interest by other companies reposed contemplating similar moves.

BY SCHOLIER BANGS

If Western Air Lines' purchase of Inland Air Lines sets the pace, future deals for absorption of small airlines will be by major operators as yet expected to pay like first-movers.

Learning that Inland was "in the mood," WAL officials wasted no time in opening purchase negotiations Oct. 5. Two days later, in Chgo., Wyo., sales agreement was signed for the purchase price of \$353,655.

Other Deals Expected—Outcome of the CAB hearing on the deal Nov. 10 on which CAB is expected to rule within 60 or 80 days undoubtedly will bring to light similar proposals involving other air lines.

The view that CAB takes after studying the Western-Inland pace with respect to valuation of the airline assets involved will be watched with interest by air transport concerns "in the mood."

Details—A year ago, WAL and Inland had reached the serious stage in negotiations that fell through because Western refused to be raised Inland as understood to have negotiated with Continental, Northwest and Braniff prior to the western purchase.

Recently, Continental and Mid-Continent Air Lines have been reported interested in the possibilities of a merger.

CAB Stand Awakened—Whether Mid-Continent and Northwest will attempt re-open negotiations that were reported to have collapsed earlier this year may be determined by CAB action as the western deal.

Because of its strategic position with routes radiating from Denver, as the Central Transcontinental Airway, to El Paso, to Wichita and Tulsa, and to Kansas City, Continental Air Lines should have little

difficulty in obtaining purchase offers.

Focus on Washington—The combination of major deals and new route venturing probably will focus on Washington and CAB the attention of small air lines that never before have felt the need of full-time representation in the capital.

WAL, for example, now vitally concerned with what is going to happen to its Inland purchase as well as applications for new routes extending from Nome, Alaska, to Boston Area, opened Washington

office last week with Ronald C. Kinney in command as assistant to William A. Coates, Western Air Lines president.

Kinney formerly was an executive of Airline War Training Institute in Washington and previously was secretary-in-charge of director of Coast Air Transport in Seattle.

Coast Air Transport was owned at the time by Vern C. Garst, founder of Pacific Air Transport, which pioneered the Los Angeles-Seattle Airway in 1937.

As an observer at an advance New Guinea base watched airborne Americans approach within 3,000 yards from each of their C-47 troop carrier planes in seven minutes and build a multi-log machine in 95 hours he commented: "The C-47, the jeep and the jeep driver are the things that don't have—winning the war in the Pacific."

The aircraft carrier USS Carl, her six squadrons and her escort vessels, a task force in the Pacific, more than any team in Navy history, recently returned to an East Coast port to receive a Presidential unit citation. The unit citation was presented by General Royal E. Ingersoll, U.S.N. Commander-in-Chief of the Atlantic Fleet as a result of the President. The unit citation was presented by Capt. Arthur A. Leland, U.S.N.

BRIEFING

An observer at an advance New Guinea base watched airborne Americans approach within 3,000 yards from each of their C-47 troop carrier planes in seven minutes and build a multi-log machine in 95 hours he commented: "The C-47, the jeep and the jeep driver are the things that don't have—winning the war in the Pacific."

The aircraft carrier USS Carl, her six squadrons and her escort vessels, a task force in the Pacific, more than any team in Navy history, recently returned to an East Coast port to receive a Presidential unit citation. The unit citation was presented by General Royal E. Ingersoll, U.S.N. Commander-in-Chief of the Atlantic Fleet as a result of the President. The unit citation was presented by Capt. Arthur A. Leland, U.S.N.

A survey recently taken by the Psychological Corps and released by the National Electronic Manufacturers Association listed the aviation industry second in national employment after the war—behind the automobile industry—and placed the aviation industry as the one "which will do the most for the American people in the future."

Grumman Aircraft Corp. has requested as fourth "B" award for "continued excellence in production" of Douglas and Lockheed planes.

The Prigmore Division of General Motors at Dayton, one of Hamilton Standard's branches, recently completed its first 5470 propeller with 6607-B blades, started production on the largest Hamilton Standard propeller, the first of this size to be manufactured in quantity. The propeller measures 18 ft. 7 in. in tip.

Carl T. Donnan, vice-president and chief engineer of Avco-General Motors Corp., has been named first vice-president of the company. C. F. B. Both was appointed vice-president in charge of sales and Charles F. Carr was appointed secretary-treasurer.

Joseph Babcock, production manager, and Walter W. Barrows, administrative manager, of the Pratt & Whitney Aircraft Division, have been named as new members of the company's board of directors.

Ford To Build Big Cargo Planes At Willow Run Plant After War

Aero manufacturer says he will continue in aviation field; reveals plans for high-speed, safe and economically operated craft of "unique design".

The much-debated question of whether aircraft companies will manufacture automobiles after the war and whether automobile manufacturers will make aircraft production is being answered, so far as Henry Ford is concerned, with his announcement that he plans to make airplanes.

His present plans call for large, multiple-engine cargo passenger planes of "unique design," to be manufactured at the Willow Run plant which is now turning out B-24 Liberator bombers.

Experiments—Ford goes so far as to foresee production of his new type of plane as possibly revolutionizing long distance transportation as his Model-T affected short distance transportation.

"We have been planning for a long time to build a cargo plane at Willow Run," Ford declared, "and our ideas are becoming more settled all the time. Although we have not been able to give any great amount of time and effort to the project because of all-out war production, we have been experimenting with small models and engines."

Safety and Economy—He disclosed further that there will be some new ideas in the Ford design, but added that he could not say much about it yet. He did say, however, that "we are trying to design a plane which will not need such tremendously long runways for takeoff, a plane which can be operated at a fraction of the cost now required for freight line planes, and a plane which will be as positively safe as it is possible to make it."

Ford and his consultants have been obtaining data from engineers and others around the Ford plant for some months and it was understood that Charles A. Lindbergh, for some time attached to the Ford staff, has been a constant consultant with Ford on the type of plane and engine which would best suit Ford requirements and ideas for postwar manufacture.

High Altitude Tests—Lindbergh is said to have been experimenting with high altitude engines with the intention that some of his experi-

ments will influence the design of the new plane.

Ford has first option from the government on Willow Run for postwar use and the company plans to take up the option. Ford explained the "first reason for this is to create jobs for the people who will need them."

WPB Halts Aluminum Plant Construction

Other federal action of the week includes Army and DPC censures.

Two major construction jobs were halted last week by the War Production Board. Since the aluminum extrusion program has been brought into balance, WPB ordered that construction on plants being built by Reynolds Metals Co., at Memphis, Tenn., and by American Brass Co., at Watertown, Conn., cease within ten days of the order. Actually in Michigan, the halt has been due at the two plants, although ground had been broken. The former was to have cost \$20,000,000 and the latter \$11,000,000.

AAF Contracts—Various contracts for AAF installations and for additional work at airfields were awarded by the War Department. An AAF installation in Dallas County, Texas, is cost in excess of \$1,300,000 and one in Hardey County, Florida, to cost \$1,300,000, were authorized.

Concurrently, construction contracts amounting to \$500,000 were announced by the chief of engineers, War Department. At Bear Cat, Texas, construction of apron, taxiway, electrical work and removal of the down rings will cost about \$250,000; additional taxiway and apron in Grapess Co., Texas, will amount to \$50,000. Removal of flight barrels at a field in Caddo Co., Louisiana, will cost \$10,000. In Carter Co., Oklahoma, additional hangars were authorized, costing \$20,000; sealing runways at a field in Hardin Co., Kentucky, will come to \$25,000, and a \$45,000 contract was awarded for repair, construc-

tion and completion of hangar and strengthening trusses at Shelby Co., Tennessee.

Chemical Allocated—The expanding aviation program moved WPB to place under allocation metallic sodium, an essential chemical in high-octane gasoline manufacture, used also in certain aircraft airframe plants. Orders for more than 100 pounds a month must be filed with the Chemicals division, WPB, for authorization on or before the 10th of the month preceding the month in which delivery is required.

Manufacturers of new essential items will be able to obtain substitute chemicals, WPB said.

Full Work Schedules—With the strict exception of the Christmas week-off, full work schedules should be observed in all war plants, Donald M. Nelson, WPB chairman, announced. Where continuous operations are essential, such as steel furnaces and open hearth furnaces producing molten steel, it was requested that work be carried on over the Christmas week-off.

DPC Contracts—\$3,450,000 went to Vega Aircraft Corp. from Defense Plant Corp. to provide plant facilities in California. A contract awarded with Chrysler Corp. to provide equipment for a plant in Ohio will cost about \$50,000. DPC increased a former contract with Chrysler by \$48,000, to provide additional equipment for a plant in Michigan, bringing the over-all commitment to about \$413,390. An increase in contracts with General Motors Corp. and Aero Motors Corp. was also announced. For additional equipment at plants in Ohio, GM paid approximately \$1,800,000. Aero's increase of \$35,000 for more equipment at a New York state plant brought its overall commitment to about \$5,138,000.

NLRB Action—Trial Examiner Moss G. Baron of the National Labor Relations Board recommended that Liberty Aircraft Products Corp., Farmingdale, N. Y., cease and desist from discouraging membership in UAW-CIO or from interfering in any other way with employees' self-organizational rights. NLRB directed that elections for millwright plant protection employees, firemen and guards at Churchill Engine & Airplane Corp., Aircraft division, be held within 30 days of Nov. 4. The vote will be for or against representation by UAW-CIO.

Dismissed was the petition filed by Associated Engineers and Technicians (Aetep). The Board found

that a unit composed of engineers in the design department of Lockheed Aircraft Corp., Burbank, Calif., was inappropriate for purposes of collective bargaining. NLRB also dismissed a petition filed by International Union of Machinists, A.F.L., finding that operations of Dayton Flying Service, St. Louis, at Lambert Field do not affect interstate commerce within the meaning of the Act. United Brotherhood of Carpenters and Joiners of America, Local 1000, was certified for employees at the Template Unit, Curtiss-Wright Corp., Airplane division, Buffalo plants.

A Army-Navy E-Airco—Navy production awards in the design of new instrument divisions, Square D Corp., Raritan, N. Y., and for the second time, to Pease Products Co., Cleveland.

Wright Honor Guest At Anniversary Fete

Flight pioneer to attend dinner of nominees in capital Dec. 17.

Only because the aviation cause from President Roosevelt, Orville Wright has occurred in the strip on the list which he will be invited to appear as guest of honor at a dinner in Washington marking the 40th anniversary of the historic flight at Kitty Hawk, N. C., Dec. 17.

Invitations to the dinner, which will be limited to 500, are now being issued by the Committee on Arrangements, of which Robert H. Stinebaugh, former Civil Aeronautics Administrator, now north Sperry, is chairman.

Peace—Theme of the occasion will be "Aviation in Peace," not only because Orville Wright and his brother Wilbur saw the airplane as a means of communication in a peaceful world, but also to consider the part aviation is expected to play in peace and maintenance of the peace it is helping to win.

Chairman of the Anniversary Committee is Jesse Jones, Secretary of Commerce. Other members are L. Welch Pogue, chairman, Civil Aeronautics Board; Robert A. Lovett, Assistant Secretary of War for Air; Armines L. Galis, Assistant Secretary of the Navy for Air; Dr. Jerome Hunsicker, chairman, National Advisory Committee for Aeronautics; W. M. Barden, Special Aviation Assistant to the Secretary of Commerce; Gilbald Wilson, National Aeronautics Association; Lester Goodrich, Institute of Aeronautical Science; Edgar S. Garrett, Air Transport Association;

James P. Murray, Boeing Aircraft Co., Aeronautical Chamber of Commerce and Tom Morgan, Sperry Corp.

Daivison's Successor Veteran Naval Flyer

Richardson, now assistant chief of aeronautics bureau, earned aviation 21 years ago.

Rear Admiral Lawrence Baxter Richardson, now assistant chief of the Navy's Bureau of Aeronautics, and Navy aviation veteran of 21 years' service, has been named to replace Rear Admiral Ralph E. Davison, pioneer Navy aviator, who is going on sea duty.

Started in 1912—Rear Admiral Richardson, whose promotion has just been confirmed by the Senate, joined the Office of General Inspector of Aircraft, Gordon City, L. I., in 1923. He completed his training as a Naval aviator in 1923 at Pensacola, Fla. Since then Admiral Richardson has held a succession of aircraft posts including Inspector of Naval Aircraft at Glenn L. Martin Co., plane officer at the assembly and repair department, and was stationed in the Procurement and Maintenance Section of the Bureau, the Airplane Design Section, on the staff of the Commander of Aircraft Battle Force, as aeronautical engineer for the construction corps of the fleet, head of the Presentment Divi-

sion of the Bureau of Aeronautics. He also served at the Naval Aircraft Factory in Philadelphia.

He returns to the Bureau from the West Coast where he was material officer with the Fleet Air.

Admiral Davison took up flying in 1910 and received his wings at the Naval Air Station in Pensacola, Fla. He did experimental work with torpedo planes and took training at Kelly Field in land planes. Admiral Davison has served aboard many of the U. S. Navy's aircraft carriers. He has been in Bureau of Aeronautics since 1941.

Woodward Cites Gain In Brewster Output

Points to marked increase in firm's percentage of "Corsair" quota.

Rear Admiral Clark H. Woodward, chief of the industrial activities division of the Navy, issued a report on plane production of Brewster Aeronautical Corp. at a ceremony unveiling a plaque to honor 4,517 former employees at the Service.

The admiral said the company filled 81 percent of its Corsair fighter quota in October, explaining that the figure had been only 33 percent in Oct. 12, but that it had been almost doubled in the remaining ten days of the month.

Kaiser Reports Gain—Henry J. Kaiser, head of Brewster, has a reported output on the average for the first part of November



UNITED PUTS BUGS IN THIS ENGINE:

This is how United Air Lines promotes a portable engine for use in testing at the Ohio Cuyahoga school for mechanics' helpers. The school supervisor says the "bug" in the engine and its up to the students to get them out. The Pratt & Whitney C-series engine develops 1,200 hp. at 2,450 rpm. and drives a Hamilton Standard-23 Automatic propeller.

THE AIR WAR

COMMENTARY

Three-Way Air Assault Stepped Up In Move To Knock Nazis Out Of War

Allied strategy indicates increasing large-scale bombing attacks from south and east, as well as from Britain, in gigantic softening-up operation.

Outstanding result of the Moscow conference from a military standpoint is the question of the war in the west resulting from a genuine coalition of the great powers of the United States, Great Britain and Russia in a concentrated effort to knock out Germany within a matter of months.

Russia's great land drive in the Ukraine continues to deal the Wehrmacht staggering blows, Leningrad and Makhovsk of RAAF's Bomber

Command and Fortress and Liberators of the 8th Air Force, in greater numbers than ever before, would devastating attacks by night and day from the west, and the newly formed 10th has opened up a series of smashing assaults from the south. All this, however, was in the circle before Moscow. What new decisions were arrived at, what new plans made which would hasten the defeat of the common enemy?

▶ **New Bomber Springboard**—The

fact that the Red Air Force has been used for the most part in tactical support of the Red Army has tended to obscure its great part in the mounting victory. In preparation for the summer offensive, from late March to the end of June, Russia's air force employed its long range heavy bombers against strategic targets in East Prussia, the Baltic states and the Nazi communication and supply lines with great effectiveness and a low percentage of losses. Improved models of these bombers are ready to pack up the bulk during the coming months.

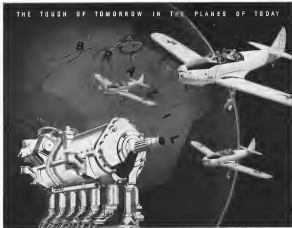
In September, 1943, the Red Independent Bomber Force was completely reorganized, and last spring's efforts may prove to have been a mere warm-up. That outfit has the same strategic objectives as the RAF Bomber Command, the U. S. 8th Air Force Bomber Command in Britain, and the 10th Air Force, soon to be moved up from India in Tunisia to southern Italy (especially Toggia), and possibly Sicily and Corsica. These "strategic" air forces are out to destroy the Nazi war machine from within.

▶ **Russian Bases for Allies**—By Russian bases, we don't mean Siberia. In addition to the renewed activity of the Red Bomber Force, another "shorten the war" move would be the granting of air bases well behind the present battle line in Russia for the use of American and British long range heavy bombers, a type which the Red Air Force has not built in substantial numbers owing to its pressing need of such tactical types as fighters, assault planes and dive bombers. This would provide an East-West shuttle bombing service of tremendous value.

All evidence points to the fact that the battle of the Ruhr is fairly well won, except for a few remaining important targets and occasional air attacks on points where renewed activity is indicated. However, far to the east—in Siberia, Poland and Czechoslovakia, 450 to 500 air miles from Russian—much vital heavy industry has been concentrated.

▶ **Shuttle Service**—Allied four-engine bombers from British bases, with heavier bomb loads for the one-way trip, could strike smashing blows at these factories and then proceed to bases in Russia, say at Smolensk, an additional distance of some 400 miles and comparatively free from strong enemy fighter opposition. The same goes for the return journey.

▶ A strafing run in the wind is the recent appointment of Belg. Gen.



More Air Power for another United Nation

The Brazilian Air Force will soon get six-cylinder, inverted, air-cooled Ranger engines made in Brazil, under a contract recently signed by that good neighbor's Government and the Fairchild Engine and Airplane Corporation.

Brazil-made Rangers, to power its air force's primary trainer, the Fairchild PT-19, will enable Brazil to turn out better pilots than ever in an even shorter space of time.

Ranger-powered PT-19's, with "fighter" characteristics, are ideal for the strenuous course of aerobatics included, today, in practically all United Nations' primary flight training. Unlike the trainers used in

the last war, the PT-19 with its Ranger engine, can safely do every maneuver in the book: slow rolls, snap rolls, Immelmans, loops, half rolls, inverted coordination exercises and turns, vertical reverses, spins, and combinations of these. The result—better pilots trained faster.

Brazil-built Rangers will also power Moth M-9 biplanes and 2-engine Grumman Widgeons currently serving in Brazilian coastal patrol, Amazon River patrol and mail delivery. Thus, to the Brazilian Air Arm is added that "touch of tomorrow in the planes of today," which characterizes Fairchild planes and engines everywhere.

BY U. S. WAR BONDS AND STAMPS

RANGER AIRCRAFT ENGINES
Division of Fairchild Engine and Airplane Corporation • Farmingdale, Long Island



SEAPLANE TENDER ON GUARD:

Four pictures of the Navy's seaplane tenders have been released, although they are on duty all through the Pacific area. Pressed under the wing of a Catalina, this 2,500-ton tender is shown at anchor somewhere in the Aleutians. Another Catalina and an auxiliary tender are shown beyond. This ship "mothers" Catalinas, Kingfisher observation planes and PT boats, stocking their fuel, supplies, and ammunition, making repairs, and housing flying crews.



air transportation as the skill and craftsmanship in designing the airplane itself. Instrument landing devices, cross-country beacons, communications and today other new secret electronic equipment rank in importance with motor, fuselage and wings. Eimac electron vacuum tubes are first choice in the air transport industry. They have long, successful experience in this field and their dependable performance has contributed much to the enviable safety records established by the major airlines.

Locomotive, Motor-car, Airplane — these things alone are not sufficient in themselves to create a dependable transportation system. The simple fact that man can fly in an airplane does not necessarily provide safe air transportation. The auxiliary equipment and sciences have provided the "missing links" in man's great conquest of the air. The science of electronics—which is another way of saying Electron Vacuum Tube—has for example contributed as much to safety and dependability in

Follow the leaders to

Eimac
TUBES



EITEL McCULLOUGH, INC., SAN BRUNO, CALIFORNIA • Plants located at San Bruno, Calif., and Salt Lake City, Utah
Export Agents: FRIZLER & MANNEN • 341 Clay Street • San Francisco, California, U.S.A.

Moyl B. Vandenberg, deputy chief of the Air Staff, as a land-lease mission in Russia. American and British military missions are already at work with Russian military leaders, and a Joint Staff may be in the making.

Importance of Foggia—The tremendous value of Foggia as an air base for devastating blows from the south will hardly be realized until it is put into use, which should be within the next few weeks. Engineering work must be completed on the airfield, but supply and service facilities must be set up, and the camp must be driven further north before large numbers of the big *Fortresses* or *Liberalators* can be safely brought up to the new base. Foggia is the strategic jewel of the entire Mediterranean campaign.

This center permits air mobility over the Adriatic Sea and Dalmatian coast, provides a springboard to focus all the *Hammocks* of Sicily at Foggia, knock out such vital but seldom bombed targets as Frankfurt, Munich, Pilsen, Nuremberg and Leipzig, and smash industrial and communication centers in northern Italy.

Balkan Menace—Also from Foggia, by a southern shuttle route, with a Russian base, say at Kharkov, the Balkan satellite states could soon be knocked out of the war by air power, as Italy was, and the retreating Nazi forces further han-

nailed by air blows from the rear, smashing up their communication and supply centers.

All this would be right on the beam for the 15th Air Force, which according to reports will eventually be commanded by Major General Doolittle, who led the Strategic Air Force in the North African campaign. This would leave the 12th as a Tactical Air Force to continue its invaluable support of the advancing Allied armies. Both would continue under the air command of Lt. Gen. Spaatz, one of America's top flight air officers, and one who incidentally, like the late Lt. Gen. Frank Andrews, has consistently seen the great value of the air assault from the south as part of the knockout air strategy.

Whirlwind from the West—November promises to provide an all-time high in the number and weight of shattering blows by the RAF-AAF team in Britain. Here, if anywhere, the burning conviction that Germany can be knocked out of the war by air power alone, flourishes. City by city, target by target, the master plan is being worked out. The air offensive still has the edge and these boys mean to keep it.

Air Power and Invasion—While in England recently, Gen. Arnold declared the air program was just about as schedule, and after that would come the invasion of the continent. The outlines of the Allied

air setup for this supreme effort are beginning to emerge. Details and personnel may differ with time, but the general scheme seems to be in order.

If Maj. Gen. Brexton is confirmed as heading up the Tactical Air Force, and if the British choose to go to Air Marshal Coningham, who headed the RAF in Tunisia, this will bring together again the two air leaders who played such a vital part in driving the Afrika Korps out of Libya, and who with Gen. MacArthur brought the air-ground team to such a high degree of perfection.

In any case, the Tactical Air Forces—British and American, or united in one—have been handed one of the toughest military assignments in history. The better the Strategic Air Force can do their stuff during the next few weeks, the less costly will the great advance be.

—NATHAN

North American Asks WMC Dallas Study

Experts Washington agency to investigate manpower utilization at critical plant.

A study of manpower utilization is under way at North American Aviation's plant at Dallas which came under the scrutiny of the Truman senate investigating committee and was the object of a personal study by Charles E. Wilson, WPB executive vice-president.

Washington Aide Gets Assignment—The survey is being made at the request of J. H. Kinschler, president of North American. The request was granted by the War Manpower Commission which assigned G. C. Giney, of the WMC Washington staff, to do the job.

Tuned Down Trained Men?—Senator Tom Connally, of Texas, and he believed there were a number of able men in Dallas and surrounding territory who, although not aircraft men, are trained in production and supervisory work and added that "many of those people were not given sufficient consideration when they applied to the North American plant at Dallas, which seemed grossly neglected in having as many trained workmen as possible."

Estimates Reduced—A reduction of 10,000 in manpower estimates for the plant was recommended by Wilson as an economy by the War Manpower Commission.



A "CAT" GETS A CHECK-UP:

An amphibian version of a C-47 was photographed by Consolidated Vultee Aircraft Corp. as the latest gear was extended into check-ups at the company's seaplane base at San Diego.

Post-War Plane Demand May Drop To 3.7% of 1944 Peak, Report Says

Survey prepared for National Resources Planning Board says 1944 program stood at 129,000 planes last August.

By BLAINE STUBBLEFIELD

Total postwar demand for planes of all types, from the U.S. aircraft industry, which has been expanded 393-fold since 1939, will be 3.7 percent of peak capacity in 1944. This forecast is made in an unpublished report completed in August by the National Resources Planning Board just before it was finally liquidated when Congress refused further funds.

Melvin A. Bromberg, author of the report, says the 1944 schedule last August called for output of 129,000 planes, valued at 19 billion dollars. (The 1944 program has been revised downward recently to approximately 130,000 planes.) 73 percent will be combat types, 11 percent transports,

and 17 percent trainers. In addition, he says the industry will produce spare engines, propellers and parts worth 10 billion dollars, bringing the total to 19 billion dollars.

Concessions.—The 1944 schedule represents a cut-back of about 10 percent in units—15 percent in tons and dollars—below the original figure. This reduction was a concession to actual capacity, the report states and did not indicate a lesser military requirement. The Board believes plane production will continue at capacity when Germany folds, with chances to 61 the war on June 30.

War investment in aircraft facilities through Apr. 30, 1943, is given

as \$2,443,000,000, 73.5 percent, by Defense Plant Corp., emergency plant contracts, \$596,000,000, 17.5 percent, by Army and Navy, \$399,600,000, 7.7 percent, by private industry, and \$71,000,000, 3.3 percent, so the total, \$3,270,000,000. This was about 18 percent of total for all manufacturing industries.

Plant Expansion.—Ninety percent of the total plant expansion is government money. Excepting the Navy's small plant, all aircraft plants are managed by the industry. Nearly all private investment is in additions rather than new plants. Joint ownership of plants will have to be arranged before final disposition can be worked out.

The report estimates postwar annual plane output in millions of dollars by type of market as follows, percentages being based on peak wartime capacity:

Domestic:	Millions	Percent
Military	10.650	2.1
Commercial:		
passenger airplanes	82	5
Commercial, cargo	44	3
Commercial, express	15	1
Private	10	3
Total—domestic	155	2.5
Foreign	1,279	3
Total—foreign	1,063	1.7

Air Police Force.—It is predicted that the number of planes serving as police planes in civilian and process will be more than adequate for initial establishment of a U. S. air force and for participation in any world police power. Enemy air forces and production facilities will have been annihilated and will constitute small threat.

For the first few years following the war, domestic airline business may reach eight to twelve billion passenger miles or five to eight times 1942 volume. One Curtiss Commando, for example, operated at 3000 hrs. annually, can deliver 14 million passenger miles. Thus the equivalent of 150 to 180 such units would be needed for the volume.

Cargo Rates.—A maximum per-ton air cargo rate of 10c per ton mile is indicated for the immediate postwar period, with ground service costs adding perhaps 3c or 4c. This rate cannot begin to compete, the report states, with the average railroad rate of 90c per ton mile or the truck rate of 4c. But the airlines can handle a large part of long-haul express, which travels at 10-15c. The Board's opinion was that the annual, during the first two years of peace, can be carried on regular passenger flights. First expansion requiring additional planes will be



LOCKHEED LIGHTNING PRODUCTION:

This P-28 assembly floor scene shows why output of the Lightning is constantly going up. A new system of subcontracting is expected to boost production of these fighters to hundreds a month. The mechanism does away with first leg completed, then carriage are

transferred to a second line moving in the opposite direction then to a third leg which moves in the original direction again. Production manholes at the Lightning have been halved since delivery of its 25th fighter. Good news for us and bad news for the Axis.

for the in-flight pickup system.

Overseas Traffic.—Mr. Bromberg states the Civil Aeronautics Board on overseas passenger traffic, noting it may increase in the two-year period to six times that of the post ending in April 1942, and that it can be carried in about 35 planes the size of Martin's Mars. Airlines for cargo, annual demand for planes might be 30 to 30 billion dollars in the field of private flying, the report concludes that if 5 percent of the families able to buy and support personal airplanes at an average purchase cost of \$2500, do buy them, the market will be about 50 million

dollars annually. This is based on CAA reports that per hour cost of private flying is \$14 to \$18.25, scaled as 192 to 300 hours per year. Development of the helicopter is expected to take several years.

Heavy Bomber Output Hits All-Time High

Output of Liberator and Fortress estimated at over 1,000 monthly.

Emphasis being placed on heavy bomber production, which best estimates place at over 1,000 in October,

is pointed sharply up in the report of Harry Woodhead, president of Consolidated Vultee Aircraft Corp., that the San Diego division last month produced more four-engine bombers than ever had been produced by any aircraft company in one month.

This comes on the heels of an announcement by P. G. Johnson, president of Boeing Aircraft Co., that production of Flying Fortress for the month set an all-time record and that it was possible to predict that their production would continue to increase until by the end of the year the company will have overtaken the goal set by the War Department for accelerated monthly deliveries.

Efficiency Rating.—Woodhead disclosed in his report that the War Production Board rates Consolidated Vultee as operating the most efficient plants in the nation in three aircraft categories for the past five months.

These are: San Diego division in heavy bomber classification, Northville division in the single engine bomber field and Vultee Field division, first in basic or advanced trainer and utility transport classification. The Sturgeon division, he said, was



MORALE BOOSTER:

West Coast Army officers are considering as a morale booster the fabulous display of completed warplanes at subassembly centers. Fresno branch plant employees of Vesp Aircraft are shown here reporting the latest model B-17G, as part of a plan to show plane workers the completed airplane which they helped build. Col. Gus Kirkwood, commanding officer, Hammer Field, does some "ground schooling" previous from the bomb-thrower's seat in the nose. With him is Capt. C. J. Lamp, of the Vesp Army office in Burbank.



NEW PLASTIC SHIELD:

This new transparent Lomax-type plastic shield presents air drafts from striking the propeller blades and prevents operator in the position of the blade—perfectly balanced as it must be for progressive checks as they are ground. Day of the shield eliminates true loss in carrying blades to equal enclosed room free of drafts. Tests are exact and made must be perfectly satisfactory.

Trail Blazing in the Skies

1935



FIRST STREAMLINER BUILT ON AERONAUTICAL PRINCIPLES was the famous "Comet," designed and fabricated by Goodyear's Aircraft Division in 1935 for the New York, New Haven & Hartford Railroad. In the Comet, lightness-with-strength was achieved by designing roof, sides and floor of the cars to resist loads carrying elements of the structure — the same aerodynamic skin or monocoque construction widely used in aircraft. This undertaking was part of Goodyear's early work in exploring the possibilities of light aircraft metals that warranted to the development of the superior alloys in use today.

HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE AIRCRAFT INDUSTRY

1. By producing subassemblies to manufacturers' specifications.
2. By designing parts for all types of airplanes.
3. By re-engineering parts for most production.
4. By extending our research facilities and the solution of new design or engineering problems.
5. By building complete airplanes and airships.

1943



METALCRAFTING EXPERIENCE THAT STREAMLINES MANY PRODUCTION PROBLEMS. As a result of its long experience in aeronautical design and light metal fabrication, Goodyear is today one of the largest producers of subassemblies for all types of aircraft. These include complete empennages and wing panels, ailerons, and all their component parts, cabin structures, floats, and float mechanisms—for both "tor" fighters and heavy bombers. And in addition Goodyear is one of the producers of the C-54—a fact that bespeaks Goodyear's ability to handle complete and intricate production problems on a large scale.



GOOD YEAR
AIRCRAFT

second in this classification.

► Output by Shipyard.—Latest index of production efficiency of the War Production Board. Woodhead and, "above Liberator" output in terms of airplane pounds per employee per day was 38 percent greater than Sea Dogs during July, August, September and October than that of any other manufacturer of heavy bombers.

The "production of Consolidated B-24 Liberators at San Diego increased 75 percent during the ten-month period from January through October, despite a 17.6 percent loss in production workers."

► Manpower Problem.—Woodhead said man-hours necessary to build a Liberator have been reduced 31 percent in the past ten months and that this follows a cut of approximately 60 percent in 1942.

"Assuming manpower problems are solved and sufficient materials are received," Woodhead said, "Consolidated Valley will most definitely increasing production schedules set for the coming months."

He added that the October Liberator production record at San Diego was attained at the same time scheduled set by the Navy for output of Catalinas and Corsairs flying boats were met.

RAF Gives Details

On Mosquito Bomber

All-plywood craft's construction described by British Information Service.

As winter draws on and RAF Mosquitoes still swarm over Germany and German occupied Europe, the British have disclosed more details on this swift bomber, including the fact that it was flying 23 months after the design began work on the drawing-board. They claim this as a world's record.

This achievement is the more remarkable because the Mosquito's structure is made almost entirely of wood. Only the skids are metal. The rest is Oregon pine, spruce, English ash, and balsa, a wood lighter than oak.

► Glue and Plywood.—The Mosquito's fuselage is made in two sections, long and short. One of three plies is stretched, dyed, a skin of three-ply sheets the thickness of a penny; then, balsa filling, then, another skin of ply-wood.

This "sandwich" is pressed hard against the frame and glued solid.

Vega Wanes

All ships that come out of the sprawling Lockheed and Vega factories will carry the single identification "Lockheed" after Nov. 20.

On that date absorption of the identity of Vega Aircraft Corp. by its parent Lockheed Aircraft Corp. will be completed.

Gradually working away from the confusing "Lockhead-Vega" name combination, the corporation now stands ready to replace in press production the name that has become a source of by-word.

Actually, popularity of the "Lockhead" trademark was well established long before the war, dating from 1918 when the company founders, Allan and Malcolm Lockhead, adopted the phonetic spelling of the company's name, and a year later flew the first of a historic series of Lockheed planes, the all-wood "Vega" high-wing monoplanes.

Under the direction of President Robert S. Gross, Lockheed renamed Vega Aircraft Corporation shortly before the war to build a light bomber, the Starliner. Purchase of all Vega assets by Lockheed two years ago, and Vega was continue that have allied its activities closely with Lockheed production, led to the present absorption of Vega's identity.



VEGA TO LOCKHEED:

Cheyford S. Gross, president of Vega Aircraft Corp., on Nov. 30 becomes vice-president and general manager of Lockheed Aircraft Corp., as right-hand man to his brother, Robert S. Gross, Lockheed president, with the absorption of Vega by its parent, Lockheed.

Construction is done in two parts to facilitate work on controls and accessories which have to be put in late. When they are in, the two parts of the fuselage are glued together like the rest.

► Flown in Britain.—Many Mosquitoes are made in Canada and flown direct to airfields in Britain, where hundreds of experienced shops and furniture factories make parts for the bomber.

Proponents of the Mosquito held that wood construction has some decided advantages over metal in a machine as fast as the Mosquito, since wood is an insulator against cold and sound, can absorb splinters and bullets without breaking up and will, if properly treated, can repair it.

► 430 Miles an Hour.—Although the Mosquito's speed has never been officially made known—Britain claims it is the fastest bomber in the world—a Service report puts its speed at about 430 miles an hour, just over seven miles a minute. Its speed does make it possible for the Mosquito to bomb specific targets at low level without warning the host against enemy ground defense and fighters. In a raid on Capeeshagen Jan. 27, Mosquitoes bombed submarine-escape factories from as low as 88 ft. and only one airplane was lost.

British figures report that in the six months ended Oct. 26, Mosquitoes made 1,000 passenger raids on some 30 German industrial sites. They attacked Cologne 33 times, Berlin 27 times, Duisburg 24 times, and Düsseldorf 15 times. Of the 18 Mosquitoes taking part in the attacks, only 11 are missing.

Vets Job Preference Program Studied

Industry eyes General Aircraft's plan to meet rising problem.

A program instituted by General Aircraft Corp. under which only ex-military veterans of the present war are considered for employment is attracting attention throughout the aircraft industry. This effort to systematize private re-employment of service men was announced by J. H. Maynard, president.

► Jobs for 300.—He estimated on the basis of the current turnover rate that General should employ nearly 300 men during the coming year. Twenty men were hired during the first week of the program's operation. The plan presently applies only to skilled assembly workers.

Wright in Volume Production On New 2,200 hp. Cyclone Engine

Company reveals details on air-cooled, radial, one of most powerful service aircraft power plants in operation.

Seemingly which has surrounded the development of a new powerful aircraft engine by Wright Aeronautical Corp. has finally been lifted with the disclosure that the company is in quantity production on an air-cooled radial Cyclone of 2,200 hp., one of the most powerful service aircraft engines in the world for use on heavy, long-range bombers, fighters and transports.

Myron J. Gordon, vice-president and general manager of Wright Aeronautical, in announcing volume production pointed out that the new engine is a much more powerful type than the Cyclones which power the Flying Fortress.

► Highest Horsepower Figure.—The engine has the highest horsepower figure the War Department has ever published. This Wright Cyclone "16" has 16 cylinders built in two banks of nine cylinders each with a displacement of 3,550 cu in.

Despite its tremendous power, the new engine has a diameter of only 35 inches, the same as that of the original nine-cylinder Cyclone which was introduced in 1927 with a rating of 1,25 hp.

► Used in "Comet" Blasts.—While information on specific military aircraft installations is still tentative, it is known that the Cyclone-16 made its first transport appearance in the four-engine Lockheed C-48 Constellation, a six-passenger, high speed plane originally ordered by Transcontinental & Western Air and Pan American Airways.

Gooden said design work on the engine was well started before the outbreak of hostilities and that "we originally planned this engine for transports such as the Constellation and passenger planes even bigger."

► Model Improved.—Based on a previous model of the same displacement which developed only 1,000



STUDY NEW WRIGHT:

Lt. Col. Carl R. Berkleid, AAF resident representative, and Myron J. Gordon, vice-president and general manager of Wright Aeronautical Corp., inspect the new Cyclone 16 developed by Wright which develops 2,200 hp. The engine, one of the most powerful service aircraft engines in the world, is now in test-unit production.

hp., the Cyclone-16 is now being produced in a new Wright plant constructed specifically for this engine. In addition, an additive company has been licensed for quantity production of the engine.

Among construction features is a nose section especially designed to permit use of a close-fitting cowling to further decrease air resistance. The engine has aluminum alloy cylinder heads and malleable steel cylinder barrels.

Construction utilizes a steel crankcase, which permits taking more power from the engine than possible with an aluminum case and a light weight magnesium in the nose section and supercharger housing. The engine's weight is just fractionally over one pound per horsepower.

► Reduction Gear System.—In order to transmit the 2,200 hp. to the propeller at the most efficient speeds, Wright engineers designed a reduction gear system which they believe is probably the lowest ratio ever used on any aircraft engine.

Extremely large, three-bladed propellers are used for the engine in order to keep the blade tip speeds within efficient limits and these propellers turn at much less than half crankshaft speed.

At some cruising speeds, the propeller turns at only 680 revolutions per minute.



NEW WRIGHT CYCLONE 16:

The new 2,200 hp. engine which Wright Aeronautical Corp. at Paterson, N. J., is now producing in quantity for use in heavy, long range bombers, fighters and transports. It is one of the most powerful service aircraft engines in the world. Lt. Col. Carl R. Berkleid, U. S. Army Air Force representative (left) and Myron J. Gordon, Wright vice-president and general manager, with a girl attach ignition harness to the engine.

AT LAST!

THE L. M. PERSONS CATALOG IS READY!

GIVES YOU COMPLETE TEST DATA AND ENGINEERING INFORMATION IT TOOK US MONTHS TO COMPILE.

COMPLETELY COVERS:
SOLENOIDS
SOLENOID VALVES
TEMPERATURE CONTROLS
PRESSURE SWITCHES

HUNDREDS HAVE ASKED FOR IT.
THOUSANDS WILL WANT IT. WRITE
US FOR YOUR COPY TODAY.

 **L. M. PERSONS Corporation**
6301 MANCHESTER AVE., ST. LOUIS 10, MO. STERLING 1100

All mail and express business in the New York district will be handled for Transcontinental & Western Air by William J. Haddley (photo), formerly a civilian employee of the War Department.



division of a St. Louis leverage firm for six years. He succeeds Charles Owen, recently named Central Regional mail and express manager in Chicago.

Capt. Norman M. McNeil (photo), who joined Pratt & Whitney-Central Aircraft as a station manager at Flint, Mich., five years ago, has been appointed chief, Flight Test Section With PCA, he has been a pilot and captain in the Military Transport Division and assistant to the chief of MTD flight training. He succeeds Capt. C. A. McKee.



B. H. Glavin, executive vice-president of Chrysler-Dodge Corp. since October, 1933, will become vice-president and general manager. He was formerly assistant general manager of Dodge Corp. and factory manager of Pratt & Whitney.

Thomas G. Englek, with American Airlines for the past 13 years, has been named director of budgets. He is succeeded as chief accountant by Lee Glasgow, head of the general accounting section. Assistant director of budgets is Chester May, financial analyst in the research department.

Charles B. Bart (right), president and general manager of Rite-Bureau-Pond Co., has been elected chairman of the board. A past president of the National Machine Tool Builders' Assn., Bart will continue to spend full time at the West Hartford plant which has



Deeds

Bart

PERSONNEL

been under his executive management since 1938. Concurrently elected president and general manager was Charles W. Deeds (left), president of Chrysler-Royal Corp., recently acquired by Rite-Bureau-Pond. Deeds was once vice-president and general manager of Pratt & Whitney Aircraft Division.

James F. Hession has been named technical services director of the Central States Aircraft Venter Committee. He has been with U. S. Plywood Corp. as chief wood technologist in charge of research and development of modern flat and molded plywoods, and has spent much time in developing aircraft and other specialized plywoods for the armed services.

Mary E. Jones (photo), former assistant works manager at Fairchild Engine & Airplane's Hagerstown plant, has been transferred to the company's Burlington plant as factory manager, succeeding Christine Merry. Jones was once with Glabe Wessick Co.



As of Jan. 1, 1944, Walter P. Fowler, operations superintendent of Trans-Canada Air Lines, Montreal, will take over the job of assistant operations superintendent at Winnipeg. One of the first group of pilots to join TCA, Fowler was formerly with Canadian Airways. He will be succeeded at Montreal by Frank E. Young, chief pilot at Toronto, formerly pilot and instructor with Dominion Airways, Montreal Air Transport, Braniff Air Club and Century Airways.

In recognition of Hartford, Conn.'s increasing experience as an air travel and war production center, James P. Doss (photo), with United Air Lines since 1933, has been named district traffic representative for United Air Lines in that city.



Philip G. Johnson, president of Boeing Aircraft Co., has been named a regional vice-chairman of the Committee for Economic Development. Johnson will have jurisdiction over CED activities in the States of Washington, Oregon, Idaho and Utah.



NEW AEROMAC ON THE WAY:

Peter Altman, consulting engineer for Aeromac Aircraft Corp., is explaining his postwar designs for the new sea and air Aeromac, details of which are set for release for release. Looking on from left to right are: Ed Stern, director of research; Carl Prandlender, president; Altman, W. D. Hall, chief engineer; Oliver Sutherland, vice-president and Al Roberts, secretary-treasurer.



VIBRATION May Have Caused This

Carries cause of mechanical failures of automobiles are vibration-based connections. And loose connections can result in anything from an annoying lumpy squeak to a loose wheel—and a serious accident. The answer to any vibration-based connection is a vibration-proof fastener. After Victory, automobile manufacturers with an eye to adding driving safety will protect their cars with Boots Self-Locking Nuts which withstand severe vibration.

More Cargo, When They Fly With Their Boots On

Cargo planes are performing basic service ferrying men and supplies to the fighting fronts. Almost always loaded to capacity, they are constantly subjected to terrific vibration stress by engines which must strain to the limit to lift the big ships from the ground and keep them in the air. That these planes are able to "take" severe vibration without "coming apart at the seams," is due largely to the vibration-proof Boots Self-Locking Nuts which protect them.

Boots Nuts are not only tough, they are also lighter than other nuts, save many pounds on each plane... thus allow for more cargo. In addition, they can be used and re-used as often as desired—literally "outlast the plane." Boots Self-Locking Nuts, standard for every type of U. S. aircraft, meet the exacting specifications of all government aviation agencies.

BOOTS

Self-Locking Nuts For Aircrafts & All Industries

BOOTS AIRCRAFT NUT CORPORATION • GENERAL OFFICES, NEW CANAAN, CONNECTICUT

Moses L. Perry has been named superintendent of customs service for United Air Lines in Chicago. He formerly served in the same capacity in Los Angeles and his job now will be to synchronize the work of UAL's traffic centers throughout the entire system.

W. Kent Wheeler, in the aircraft business for 14 years both as an executive and as a pilot, has joined Ryan Aero-transport Co. as Dayton bureau representative of the staffed manufacturing division. His background includes ten years with Solar Aircraft Co., a year with Lockheed, a year and a half with Glenn L. Martin Co. as assistant supervisor of production, and jobs with several small aircraft companies. At Dayton, he will specialize in engineering service for Ryan aircraft systems manufacturing division, working in collaboration with Paul High Wetmore, head of Ryan's liaison office with the AAF since last June.

Jerry Kiefe (photo), has been appointed to the position of director of public relations of the Lewis School of Aeronautics, Leetford, Ill. He was formerly vice-president of Halco and Kiefe, sales consultants.

W. A. Peterson, president of United Air Lines, is a busy man these days. He recently was elected to the board of directors of the City National Bank & Trust Co. of Chicago, named to the National Industrial Conference Board and elected a director at large of the Illinois State Chamber of Commerce.

D. A. Book (photo), formerly with Glenn L. Martin Co. in Baltimore has been named to the position of assistant manager of general design engineering in Good-year Aircraft Corp.'s plants A and B, Akron, Ohio.

A. F. Monette, plant superintendent at East Hartford for Hamilton Standard Propeller Division of United Aircraft, has been appointed assistant general superintendent. He was formerly with Standard Steel Propeller Co., predecessor of Hamilton, with Worthington and Austin Tool & Machine Co.

The following naval aviators have been named to new posts: Comdr. Ross F. Mahaback, USNR, has reported for duty in the Radio and Electrical Branch, Bureau of Aeronautics, Lt. Comdr. George Crampton, Jr., USNR, will serve



ALL-AMERICAN VETERAN: Charles W. Wendt, who has been appointed vice-president of All American Aviation Inc. was previously director-treasurer of the mail pickup company from its inception in 1929.

in the Procurement Division, BuAer, Lt. Comdr. Paul F. Bersek, USNR, has been detailed from the Aviation Personnel Division. Capt. D. P. Smith, USN, has assumed duties of director, Naval Air Transport Division, DCNSO, relieving Capt. J. F. Wilkey.

After a long illness, James V. Griffin is back at his desk in Lockheed Aircraft Corp.'s publicity department.

Wesley L. Goss (photo), Transportation and Western Air's district traffic manager at Dayton, has been promoted to the newly created post of assistant to the Central Region Traffic Manager. He has been in the airline business for the past 14 years.

Paul R. Jacobs, general manager of Harvill Corp., Los Angeles die-casting and hydraulic firm, was elected vice-president of the company. He will continue also as general manager.

Promotion to lieutenant colonel of Robert E. Sen, on leave from his duties as president of Continental Air Lines since Sept. 1942, is announced. He is presently stationed at Morrison Field, West Palm Beach, with the Air Transport Command.



PAA'S LONDON CHIEF MARKS 10 YEARS ON JOB:

John C. Leslie (left), Atlantic division manager of Pan American Airways, congratulates Richard C. Long, PAA's regional director for the United Kingdom, Ireland and Portugal, on the occasion of the latter's completion of ten years with the company. Long, while headquarters are in London, was with the company as a trainee, commissionaire and commercial attaché for ten years before entering the senior staff.

Airline Survey by Brokerage Firm Lists Factors in Industry's Future

Contains valuable statistical material but fails to give completely accurate picture of aviation industry and problems facing individual companies.

By ROGER WILCO

Widespread interest in airline securities has brought various studies on the industry by a number of investment firms. Recently released, and named of a wide circulation, is a 36-page review entitled "Airlines, 1943," issued by Merrill, Lynch, Pierce, Fenner & Borne, many-branched New York Stock Exchange firm.

Briefly written, this survey contains considerable reference material of a useful nature to an airline outsider attempting to look inside. To a sophisticated airline observer, however, much of the report is superfluous and, in a few instances, the report is actually misleading.

Realistic.—The study does attempt to take a realistic view of the industry's present and future and does a reasonably good job in evaluating pertinent factors. Short, over-page reviews of each of the eighteen airlines having securities publicly outstanding, also are presented.

A short history of the airlines' association with the Air Transport Commission and the Civil Aeronautics Board is provided and shows the place of such wartime activities in the revenues and profits of the industry and the expenditures incurred for commercial expansion. Among other things, a roster of airline men now serving in uniform in key positions is presented. Many will wonder why the name of Commander Paul Rishner, TWA's able executive vice-president on leave with NATS, was omitted. Perhaps a few other names also could have been added.



AIRLINES—1943:

Global map based on developments made possible by growth of Army and Naval Air Transport Services shows probable air routes in post-war era. The illustrations appear on cover of new brochure on "Airlines—1943," published by Merrill, Lynch, Pierce, Fenner and Borne.

Sound Thinking.—In examining the future of air cargo operations, the report thoughtfully expressed by aviation people is reflected in the statement: "Even if the airlines wanted only sea-borne or railroad less-than-carload freight it would be almost 100 times as current air cargo—certainly something to shoot at."

In addition to enumerating the favorable factors, cognizance is taken of the specific post-war problems to be faced by the industry. The changing of the industry, strict regulations, severe international competition and Government operation all serve to place doubts in the investor's mind.

Costs Problem.—The report's assertion that postwar "plane and equipment costs are sure to nose-dive" will come in for a serious argument from many responsible quarters. United Air Lines' President not so long ago stated that, because of higher labor costs, equipment costs may be expected to be materially higher in the postwar era.

The survey's statement that "over-all labor costs will also go down mostly because the U. S. military forces have trained... 1,000,000 pilots, navigators, technicians, mechanics and ground crewmen" is also subject to considerable doubt.

The high standards, prevailing regulations and the place of organized labor in the industry will hardly make for "pilots at a dime."

The report estimates that the "Big Five" airlines (American, Eastern, Pan American, TWA and United) should earn at least \$15,000,000 for all of 1943, up fractionally from 1942's \$14,525,000. This department, in the first issue of *Aviation News* Aug. 2, 1943, indicated the factors militating against increased earnings for 1943 over last year. The same belief is here reiterated and the "Big Five" will do well to approach 1942 results this year.

Helpful Data.—The histories and statistical data presented each of the individual airlines presented should be very helpful and find frequent use. However, for complete data on any of the companies involved, the investor would do well to make further examination. For

**\$200
...BAIL!**



Safety first... but... and sheeps... that's the last word which protects our kids who fly.
 * * * Marning the best planes ever built... with guns and equipment to match... crash stream explosive that no small part of their ability to concentrate on destroying the enemy, is their feeling of confidence in their safety chute... if need to leave the ship over their heads.
 * * * Switlik leadership in design and Switlik efficiency of production, are turning out the finest parachute that money can buy... and are setting new records for deliveries! * * * * *



Air Power is winning the war
... The more Bands you buy
... the more knots they fly!

SWITLIK PARACHUTE COMPANY
Brooklyn, New Jersey

example, in the Bristol presentation, no mention is made of the fact that if a present CAB had this action is authorized, the company's net income will be reduced by about \$149,500 for the first six months of 1943.

Stidham—An interesting insight into the policy of disclosure of its interest and/or its general practices in airline securities. The 1942 edition showed that the Merrill Lynch firm for its own account and its general partners on Nov. 17, 1942, owned a "small" amount in Beechcraft, Eastern, Pan American, PCA, TWA and United. A "substantial" interest was reported in American. Almost a year later, on Oct. 15, 1943, investments were confined to a small interest in American, American and United. (An interest in a company having a market value of less than \$50,000 is designated "small" between \$50,000 and \$100,000, "substantial.")

Financial Reports

Northwest Airlines, Inc., for the year ended June 30, 1943, reports net income of \$613,143. Operating revenue for the nine-month period, equal to \$3.61 a share on 234,939 shares of capital stock, compared with \$433,100 or \$1.85 a share for the preceding year.

Chicago and Southern Air Lines, Inc., has filed an amendment to its registration statement with the Securities and Exchange Commission in which it gives the offering price on the voting trust certificates for 50,000 shares of common stock to be sold to the public at \$12.50 a share. Proceeds will be used for new equipment to be used on present proposed routes, reduction of bank loans and working capital.

Pennsylvania-Centel reports net income of \$200,012 for the nine months ended Sept. 30. Operating revenue for the nine-month period was \$2,887,635, operating expenses \$2,448,615 and operating income \$539,020 before taxes and reserves. Net income, after \$90,250 reserve for nonreversible assets adjustments under new contracts and \$504,566 for federal income taxes, amounted to \$37 cents a common share, on 237,375 shares.

Net income for the third quarter was \$146,090, equal to 24 cents a common share, against \$107,130 or 25 cents a share the second quarter. Net working capital at the end of the third quarter was \$2,884,434, as against \$2,077,476 Dec. 31, 1942. In the nine-month period, the ratio of cash to current liabilities increased

from .62 to 1 to 1.63 to 3, and the ratio of current assets to current liabilities from 2.71 to 1 to 3.46 to 1. PCA's assets totaled \$5,563,750 compared with current liabilities of \$1,619,612. Capital surplus was \$1,341,943, earned surplus \$98,661.

Beechcraft Airways reported net profit for the September quarter, after charges and \$221,250 taxes was \$266,543, the equivalent of 36 cents each on 1,066,658 shares. Last year the figure was \$195,963 after \$121,324 taxes, or 18 cents a share. Operating revenue for the quarter was \$1,428,763, an increase of \$860,014 over the 1942 quarter. This year's figure was made up of: total revenue, \$356,116, passenger, \$951,324, express, \$11,296, and other revenues (net), \$59,055.

Total expenses, without federal income taxes, were \$932,531, consisting of \$819,943 operating, maintenance and passenger; \$95,239 traffic and sales; advertising and publicity and administration; and \$40,352 depreciation and obsolescence. In last year's third quarter, total expenses were \$948,623. T. K. Bristol, president, advised stockholders that, in view of the increase in the company's size, importance of its operations and the number of stockholders, reports will be made quarterly hereafter, instead of annually or semi-annually, as in the past.

Northwest Reports

Northwest Airlines reports net income for the year ended June 30 was \$164,203, or \$2.51 a share. For the previous fiscal year, net was \$459,166, or \$3.92 a share.

United to Refinance

Stockholders to vote on authorizing of 200,000 cumulative preferred and redeeming shares.

United becomes the latest airline to announce refinancing plans with disclosure that it has informed the Securities and Exchange Commission of a meeting in Chicago Dec. 23, where stockholders will be asked to act on a proposal by the company's board.

In addition to changing the name of the corporation, now United Air Lines Transport Corp., to United Airlines, Inc., the proposal is to change provisions on capital stock in order, among other things, to authorize 200,000 shares of cumulative preferred stock.

Convertible Series — "Of this amount," United said, "the corporation would plan presently to issue 100,000 shares in the form of a convertible series which would be offered to holders of the common stock in the ratio of seven shares for each 100 shares of common stock held."

Investment bankers are to underwrite the offering, probably headed by Harriman, Ripley & Co., Inc., with whom talks are being held. The statement also said United has no intention of issuing the balance of cumulative preferred to be authorized, nor does it intend now to issue any additional common.

Vancouver-Victoria Seaplanes Planned

Canadian Pacific seeks permit for service, using foot-equip Beechcrafts.

By JAMES MONTAGNES

Westcoast Canadian cities are preparing for a summer advance in commercial flying. Canadian Pacific Air Lines is planning to establish a regular seaplane service from Vancouver harbor to Victoria next summer, although the Vancouver city council objects to dropping its well-known aircraft using the harbor, since a combined seaplane and landplane base has been built at Sea Island, within a few miles of Vancouver. Sea Island is the civic airport and site of the Boeing Aircraft of Canada plant.

Test Flight Hangar—Construction of a big test flight hangar for CPA is well under way at the Vancouver municipal airport. The building is to be 248 ft. long, 136 ft. wide and 50 ft. high, of all-wood construction and concrete foundation. The hangar is close to the airport seaplane lagoon and will be used to store and equip planes being tested.

CPA is to use the new two-engine foot-equip Beechcraft planes on the Vancouver-Victoria service, and is arranging for larger planes for use on the route from Regina, via Moose Jaw and Saskatoon to North Battleford, and Regina, Sask. providing passengers with adequate ground accommodations in far northern points is rapidly being solved with erection of passenger stations and overnight accommodations at stopping points. L. B. Ulrich, CPA president, reported after a 10,000-mile inspection tour of CPA facilities.

people with a PUNCH!



A Reserve Guard platoon demonstrates a "Shore-land W edge" formation and in crowd control.

(Below) Reserve Guardsmen show their proficiency at amphibious drill... a signal from an emergency communication.



Beech Aircraft CORPORATION
BEECHCRAFTS ARE DOING THEIR PART
WICHITA, KANSAS, U.S.A.

INSTALLMENT TWO*

A year ago we first told the story of Beechcraft employees. We told of their spirit of personal sacrifice and their contribution to the war effort. Here is this story's continuation.

The production records of which they may be justifiably proud a year ago have been shattered. Voluntary contributions on War Bonds have been increased to more than 22% of our total gross payroll. Hundreds of Beechcrafters with a supercharge of enthusiasm and energy and loyalty have maintained the record of the Beechcraft Reserve Guard, some of whom are shown in these pictures of their Second Annual Review. These men and women voluntarily drill and practice in their free time so that they may be ready to cope with any catastrophe or emergency that may arise, whether caused by fire, sabotage, or act of God. They have chosen to sacrifice life, war material, and the peace, in the interest of the war effort. They come from all departments of the Beechcraft organization, stand without pay, and buy their own uniforms.

It's a grim slogan that these people with a punch have adopted: that war is a grim business. And their record proves that they mean it when they say,

"LET'S KILL 'EM WITH PRODUCTION"

*to be continued with "Victory"

Prehearing Conference Opens In Capital on Caribbean Routes

Nineteen companies are represented out of 21 seeking to operate air lines to Mexico, Central and South America and Caribbean.

BY BARBARA FREDERICK

All but two of the 21 applicants to the Civil Aeronautics Board for permission to provide air service from the United States to Mexico, Central and South America and the Caribbean Area, sent representatives to a prehearing conference in Washington last week. More than half the requests were filed within the last few days before the conference in a mad scramble to get on record as having interest in this area.

Missing were representatives for Southwestern Air Lines, which had just filed for an air freight and express route from St. Louis to Mexico City, and Andrew J. Burke, applicant for a route from Corpus Christi, Tex., to Monterrey, Mexico, to carry mail, passengers and express.

Agreements—Although Revenue Frances W. Brown cautioned to company representatives that they were not being very specific in revealing the issues to be considered in their cases some indications of forthcoming agreements were revealed. Section 481 of the Civil Aeronautics Act would definitely be an issue, Public Counsel Stuart Tipton stated. On this question, Grace Line intends to show that there is nothing in 481 which prevents a steamship company from operating air services.

Chief Post Co. will contend that 481 does not apply to their case. Western Airline expects to recommend to Congress that the act be amended to clarify or eliminate this action.

Challenge—International Airways questions the interpretation by either CAB or Congress of the meaning of 481 and believes steamship laws can comply by meeting requirements of CAB, such as the investment ordered in the case of American Export Lines.

Moore McCormack Lines agreed substantially with International but

stated that they also expect to bring up Sec. 211(b) of the 1936 Merchant Marine Act, in which the Maritime Commission was instructed to investigate air service. If the CAB



BACK FROM CARIBBEAN:

Edward Werner, Chief Administrator Board, returned from his return from a "liaison mission" of the routes in the Caribbean. He is shown boarding a Pan American plane at Miami, where he flew to Port-au-Prince. Other points on his itinerary were Ciudad Trujillo, San Juan, Antigua, St. Thomas, Port of Spain, Barbados, Curacao, Kingston, St. George, Havana and Mexico. He returned to Washington Dec. 17, after using two weeks' CAB staff mobile important decisions on Caribbean air services in coming months.

had had this in mind in the American Export decision, counsel for Moore McCormack suggested the outcome might have been different.

Pan American Stand—Expecting to fight these interpretations, is Pan American Airways, whose counsel said his company would take its usual position on 400. Counsel for Pan American-Grace also indicated that his company will resist.

Most participants agreed that hearings could not be held before late March or early April, and many considered these dates too close.

CAB Prepares Study—In one respect, the hearings will be unique in that CAB's economic staff is working on a study of factors which affect economic security and convenience in these territories, and which will eliminate much duplication of effort by applicants. This study is to be completed by next month.

Probably in that all applicants for these areas will be consolidated on one hearing, although certain days may be specified for particular portions such as Mexico, or the Caribbean, exclusively.

Both National Airlines and Western Airline expressed the opinion that, as their applications have been before the Board for three years, they should be considered and disposed of before the proposed hearings.

Precedents—Chicago and Southern Air Lines, Eastern Air Lines and Delta Air Corp. protested intervention in these proceedings by W. J. Grace and Co. If allowed, "Any substantial stockholder in any company could intervene," according to Eastern's counsel.

W. R. Grace and Co. has filed an intervention on Eastern's application number 1466 to protect Pan-Am's interest in Balboa. "In view of the fact that Pan American and its four directors on the board of Pan American-Grace are opposed to the extension of Panagra's route from Balboa to the United States!"

Present—Representatives of the following companies were present at the conference: American Airlines, American Export Airlines, Braniff Airways, Caribbean-Antilles Airlines, Chicago and Southern Air Lines, Delta Air Corp., Eastern Air Lines, Goetz Air Service, Grace Line, International Airways, Moore McCormack Lines, Grace Line, W. R. Grace and Co., Pan American-Grace Airways, Pan American Airways, National Airlines, United Fruit Co., Pennsylvania Central Airlines, Western Airline, and Western Air Lines.

Post Office Frowns On Future Subsidies

Postmaster General says expansion in smaller communities should pay in one way.

Post Office Department does not begrudge the financial aid it has given air transport, but it holds that future expansion of air service to smaller communities should be without subsidy. Moreover, it does not see the airplane replacing the motor truck when it comes to short haul traffic after the war.

Letter to People—These views were outlined in a letter to L. Welch Pogue, Chairman of the Civil Aeronautics Board, from Postmaster General Frank C. Walker, for the record in the CAB mail-delivery-pickup investigation.

Pointing out that his department chartered and sponsored the majority of the present air routes, Walker said the department's financial aid was "a most essential factor," but saw the system has reached financial self-sufficiency.

Convenience and Economy—Board development and expansion should continue until air transportation is available wherever public convenience and economy require, but "the best interests of aviation will be served by healthy growth, induced by independent stability and unencumbered by subsidy except when the national interest clearly requires such assistance."

Sound Public Financing—Future expansion in almost every field, he expects, will continue to follow closely the normal trade channels and will be sheltered by additional schedules and larger aircraft.

"Undoubtedly there are still potential routes for feeder service areas, awaiting new selection, where traffic potentials indicate early self-sufficiency, or where possible public benefit clearly transcends the factor of cost."

Seen Near Mail by Car—As to feeder routes, the letter continued, "It should be borne in mind that motor transportation will be renewed after the war with increased emphasis. This medium is well adapted for short haul traffic and high in popular favor. Supercedure by aircraft is not in immediate prospect."

There will be few of the many proposals for local and feeder air service that will meet the searching tests of practicability and economy as competitors with surface transportation having inherent advantages.



CANADIAN PACIFIC SETS 100 PERCENT FLIGHT RECORD:

Canadian Pacific Airlines' flight between Edmonton and Whitehorse, a 2,600-mile round trip, has completed a record nine months of 100 percent scheduled operation. This season 243 consecutive round trips, more 475,000 seat miles and 6,500,000 passenger miles. Nearly 1,000 passengers and more than 200,000 lb of mail went to final points along the Alaska Highway. Flight conditions along the route, which extends from the temperate zone in Yukon Territory, range widely. Temperatures vary from 68 degrees below zero to 103 above. In the photo, Capt. Ralph Dulka, CPA pilot, is being congratulated by Capt. James Bell (left), manager of the Edmonton airport, and G. W. G. McCosker, general manager, western lines, CPA right. With Dulka are Sherbourne Ruth Northcott and First Officer Art Holden.

Kansas City Area Holds Feeder Talks

115 towns and cities in district to be represented at discussion.

A new type of round table, to provide opportunity for applicants for local air service is a given, trade area to discuss their plans with representatives of communities in that area, is being held this week in Kansas City.

The Chamber of Commerce says its "Heart of America Local Air Service Conference" there Nov. 23 is the first of its kind, so far as it can determine. Chambers of Commerce and city administrative offices in 115 towns and cities in the Kansas City trade area have been invited, all of them from places covered by applications filed by existing and prospective air carriers with the Civil Aeronautics Board.

Applications—Thirty-four applicants, all of whom also have been invited to participate, have filed for

73 routes to and from Kansas City and affecting 340 communities.

Principal speaker will be C. Ed-ward Lowery, chief examiner for the Civil Aeronautics Board, who will discuss prospects for local service systems with particular reference to the part chambers of commerce can take in the development of such systems.

The program will include such subjects as trade area airline service, feeder and pickup service, local and feeder services proposed by local air operators, and local service on trunk line routes. A demonstration of air mail pickup will be a feature of the meeting. Other speakers are T. E. Braniff of Braniff Airways, J. W. Miller of Mid-Continent Airlines, W. Haley Reed of Consolidated Air Lines, and E. Lee Tolman of TWA. T. E. Fisher, regional airport supervisor for the Civil Aeronautics Administration, W. K. Clark, CAA senior air carrier inspector, and airport engineers, managers and airline technicians are to be available for panel discussions.

Tel-air means fine aircraft parts



Tel-air

Precision Machined Parts Can Help Your Production

The precision of special pistons is but one of the ways we have proved that Tel-Air production helps production in those plants requiring prompt delivery and quality workmanship.

Your problem may be quite different from a piston — it may be a stamping, or some part requiring a multiplicity of operations. Whatever it is, providing the diameter is not over 2" (except for chucking work) we believe we can handle it to your satisfaction. Send your blueprints today.

ON THE HIGHWAYS - IT'S

Teleoptic



IN THE AIR - IT'S

Tel-air

MANUFACTURERS FOR MORE THAN 25 YEARS

The Teleoptic Company, Racine, Wisconsin

Pogue Urges Allied Firms Operate Foreign Air Bases Following War

CAB chairman favors private management of global routes in talk on "World Highways of the Air."

L. Welch Pogue, referring to the much-discussed foreign air bases, has suggested their eventual operation by a business organization sponsored by United Nations interested in their upkeep.

The Civil Aeronautics Board chairman also has come out for private ownership in international air operations, but does not take sides on the question of monopoly vs. competition in the international field.

Question—He posed the latter question in a speech in New York last week, said the problem was a hard one, and then did not commit himself. He was discussing "World Highways of the Air" at the annual New York Herald Tribune Forum.

Pogue feels that the Board should not expect to be the last word on international aviation policy, which he described as so closely identified with international relations that "final solution of national policy questions must rest with our elected representatives, the President and Congress." But he pleaded for a well informed public opinion on international aviation as a basis for that policy.

Opposes Curb—"International air transportation," he said, "must not be shackled by unwarranted restrictions." Few international problems, the chairman declared, could lend more credibly to "pover policies." On the other hand, none has offered so great an opportunity for world-wide lasting friendship and peace.

Expanding that the views were his own and not government policy, he said he favored "a minimum of artificial barriers to international commercial air operations; universal recognition of the right of commercial air transit; avoidance of a world checkboard of zones of air influence; and suitable airports throughout the world available on a fair and equal basis to commercial aircraft of all nations participating in international air transportation."

Airport Program—Pogue pointed out that the war had resulted in many "excellent airports" built or enhanced with resources of nations other than the one where they are, some of which naturally could play

an important part in the future world air transport network.

He suggested that the countries having sovereign jurisdiction over them "might be willing to permit such airports to be owned, operated and financially supported by a business organization which, would in turn be owned by those United Nations desiring to see such airports so administered and willing to underwrite costs of upkeep not met by operating income." Such an arrangement, he predicted, would insure uniform methods, fair service charges, and other benefits, and be "one place where, on a hard-headed business basis, international co-operation holds high promise of benefit to all."

European Airlines—The CAB chairman acknowledged that most of the European airlines are "closed instruments" of their respective nations, mostly owned in whole or part by their governments, and each enjoying a monopoly of all interna-

tional commercial air operations existing in the country.

But in this country, "private ownership, under government regulation and with government aid where required, has given us the finest domestic and international airlines in the world . . . I, therefore, believe that private ownership should be continued in our international air operations, subject to appropriate governmental regulations."

National Policy—Then he asked rhetorically whether "the national policy should be to authorize a single American flag air carrier or several such carriers to conduct 'air' inevitably widespread and tremendously important international air transportation and, if several, should each operate in an area of the world where it does not compete with any other American air element, or should reasonable competition between them in such traffic areas be permitted?"

Several objections should be sought, Pogue said. Strength and harmony in international relations are factors, but "we must beware of over-kill" and not confuse it with strength.

Defense Factor—"The policy we adopt should be one which will best contribute to the national defense, the commerce, and the postal serv-



POWER SWEEPER PROTECTS TIRES;

American Airlines is using this power sweeper to pick up nails, bolts and other sharp pieces of metal on tarmac and hangar floors, as a precaution for surplus tires. The machine is used to remove a mass of three or four men on the outside and five or six men-hours in the hangar.

A Dangerous Precedent

THE PRESIDENT should not accept the resignation of Charles E. Wilson as vice-chairman of WEF. It is indispensable to the nation and should be deferred to continue his service into the critical period of industrial conversion to peace.

Mr. Wilson came to Washington reluctantly and at personal sacrifice—only at the personal request of the President. He felt that the obligation to the country of the billion-dollar General Electric Company which he headed was of sufficient importance to justify his staying at his post. He feels now that the biggest part of his Washington assignment has been met, and that he should return to G. E.

There is a dangerous tendency rising in Washington which should be stopped quickly. This can be done only by the President. There is an inclination by the leaders of industry who are performing valuable services for the government to consider the big job done. They are preparing to pack up and go home. Unless the President makes a vigorous and personal appeal there will be an exodus.

Mr. Wilson is outstanding among business leaders who have come to Washington. He has had to battle constantly for what he, industry and the nation demanded. It was weeks before his duties were even defined. He stuck out this discouraging period and finally was able to start work. His record of

achievement in bringing Radar, escort vessels and aircraft over the hump is amazing to those who know the woefully complex Washington picture.

He has been a powerful unifying force both on the sometimes temperamental aircraft industry itself and in writing and catalyzing individualistic government agencies such as WMC, Selective Service, Housing Administration, and the Army and Navy.

He has even prevented production interruptions by acting as a buffer between industry and various well-intentioned groups in the capital.

His integrity and prestige have been potent factors in bringing aircraft production close to schedule. His eager assumption of the responsibility to do the job, and his ability to learn the problems and look them has raised his stature to that of an outstanding public official.

Mr. Wilson should be induced to remain. His responsibilities to the country are only half done. He and the other capable men like him are needed during the coming months of contract terminations, disposal of surplus materials and plant facilities, and conversion of industry to peace. His departure will set a dangerous precedent. If ever government needed sound advice from business, it needs it now and for the months to come.

So the Public Can Understand

RECENT PRAISE on this page for the readability and effectiveness of the manuals prepared by the Bureau of Aeronautics Training Literature Section aroused discussion of the problem of simpler language in aviation literature. One of the more thoughtful officials in CAA points out the real job for peacetime public education in aviation must be done by CAA and CAB.

CAA has already made a start with two of its new pilot training bulletins, "Elementary Flight Maneuvers" and "Patter for Elementary Maneuvers." The Army's aviation literature has also been spruced up recently, and the Airlines War Training Institute issued several excellent training booklets.

"The civil air regulations may have to be voluminous and legally phrased to meet the requirements of law but it goes almost without saying that the more rules a man understands the more he'll obey," this CAA official says.

There is too much "federalness" in government literature today. One civil aeronautics manual, outlining technical requirements of a maintenance regulation, for example, defines major alterations

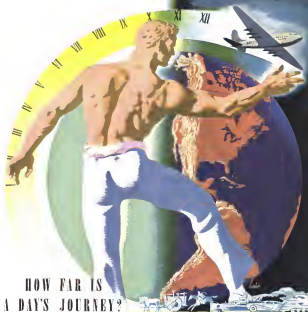
as "All those alterations not included in the definition of minor alterations." The Infantry Manual, until recently, defined high ground as "That portion of the earth's surface surrounded by low ground."

Too much aviation writing has been restricted to engineering and technical writing. A 130-page CAA report on testing of fire protection apparatus contains the very conclusion that "Observations of numerous fires showed that the optimum detector locations were the points of flame spread from the powerplant installations," or translated, "The best place for a fire detector is where there is most likely to be a fire."

Involved, technical writing has its place in the files of research engineers. But the writing which the average man will read and appreciate most will be somewhere between the newspaper page and the technical journal.

Books built around that midpoint would give the average man a greater appreciation of flying and of the government's interest and aid in making flying safe.

ROBERT H. WOOD



HOW FAR IS A DAY'S JOURNEY?

By air-curt, it's about twelve miles, by horse, about fifty, by fast ship, several hundred. Modern automobiles may cross several states and transcontinental trains can cover half a continent. But today's aircraft are spanning oceans in less than a day.

Mountains, oceans, deserts... have become only colorful parts in the pattern of swiftly changing pictures viewed from an airliner window.

The developments of transportation have always influenced the de-

velopments of economic history. Changing ways of travel have caused changing ways of living. That's why today's aircraft designers and engineers—in planning tomorrow's aircraft—are also helping to shape the post-war World.

Right now, at McDonnell, we're working three shifts a day making planes, parts and plastics for war. For production use... on schedule... it's vital to victory. But we're making plans too, for aircraft which we believe will contribute greatly to tomorrow's peace-time World.

McDONNELL Aircraft Corporation
Manufacturers of PLANE • PARTS • PLASTICS • SAINT LOUIS • MEMPHIS

Thunderbolt

40,000 ft.

35,000 ft.

30,000 ft.

25,000 ft.

20,000 ft.

15,000 ft.



Highway patrol

Sure, you've read this story before. It's in your newspaper frequently. "Bombers over Germany again last night . . . escorting Thunderbolts broke up mass attack by enemy fighters."

Possibly you missed an important point: *that most of these battles start at near-stratosphere levels, up around 35,000 feet or above.*

Thunderbolts patrol the *high* ways of today's air war, the strategically important stratosphere.

This very same stratosphere will be the natural sky-road for tomorrow's high speed, long distance transportation. We think of the Thunderbolt as the forerunner of great peacetime planes to come—planes designed for high speed, high altitude flight.

Republic Aviation will know how to build them! Republic Aviation Corporation, Farmingdale, L. I., New York.



REPUBLIC AVIATION

SPECIALISTS IN HIGH-SPEED AIRCRAFT

MAKERS OF THE

Thunderbolt